

---

## **EPA To Evaluate Soil Gas and Indoor Air**

---

*In October 2002, the U.S. Environmental Protection Agency (EPA) issued a draft guidance for evaluating the vapor intrusion to indoor air pathway from groundwater and soils. EPA, in conjunction with the Connecticut Department of Environmental Protection (CT DEP) and the Connecticut Department of Public Health (CT DPH), will be sampling a limited number of residential homes in Durham in May 2005 to investigate for potential vapor intrusion. EPA will sample indoor air and soil gas inside or adjacent to approximately 10 homes to more fully characterize any potential migration of volatile organic contaminants (contaminants that evaporate into the air easily) from the Durham Meadows Superfund site.*

---

### **Introduction**

"Vapor Intrusion" is the migration of volatile chemicals from the subsurface into overlying buildings. Volatile chemicals in buried wastes and/or contaminated groundwater can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings in ways similar to that of radon gas seeping into homes. In some cases, the vapors may accumulate in buildings to levels that may pose an unacceptable risk of chronic health effects.

Volatile organic compounds (VOCs) have been detected in groundwater wells at the Durham Manufacturing Company and the former location of the Merriam Manufacturing Company, as well as in soils, shallow groundwater, or soil gas at one or both company properties. A number of private wells in the area have carbon filters installed to remove VOCs from drinking water.

At this time, EPA has no evidence to suggest that VOCs are migrating from contaminated groundwater or soils into area homes and buildings. Most residential wells in the area are deep, and therefore may not be serving as a pathway for any VOC migration into homes.

The purpose of this work is to collect information at and around a limited number of residential homes near the two facilities to determine if further investigation may be needed.

### **Soil gas and indoor air sampling**

EPA, in conjunction with CT DEP and CT DPH, will be sampling indoor air and soil gas at approximately 10 homes in the Durham Meadows Superfund site area. EPA will contact homeowners in the area and request access to conduct sampling which is voluntary and without cost to the homeowner.

Where homeowners have given EPA permission to access their homes, EPA will take indoor air measurements in the

basement of the home and in the first floor living area. Indoor air will be sampled for VOCs using a number of "Summa canisters." The canister is volleyball-sized, and contains no moving parts. It is our preference to leave the canisters in the homes for 24 hours in order to best provide for a time-weighted average measurement of VOCs (if any). The EPA technician will therefore ask homeowners to leave the instrument in the home overnight.

The problem with measuring indoor air is that VOCs can come from ordinary household items or activities, such as a can of paint, new carpet, bringing home dry cleaning, and using nail polish or other cosmetic products.

In order to help decide whether any VOC detection inside the home is a result of vapor intrusion instead of household sources, EPA will also sample soil gas in/around the home.

Soil gas is a term describing gas that fills the tiny voids between soil particles. VOCs that migrate from contaminated groundwater or soil may be present in soil gas around or under building foundations. Outside of the home, the EPA technician will sample soil gas around each foundation wall by pushing a long probe into the soil. Inside the home, the EPA technician will try to do the same, depending on the basement structure. If the basement has a dirt floor, a similar sampling technique can be used. If the basement has a concrete floor, the EPA technician will search for intrusion points, such as a hole for a sump pump, or large cracks or voids in the slab.

### **Sampling results**

EPA expects to mail sampling results back to the homeowners within approximately two months of the sampling date, along with an evaluation regarding VOC detections, if any. Results will also be shared with CT DEP and CT DPH and representatives of all the agencies will be available to discuss the results with residents.

## SITE HISTORY AND BACKGROUND

The Durham Meadows Superfund Site is located in the Town of Durham, Connecticut, and includes an area of groundwater contamination generally centered on Main Street.

Investigation of the Site currently centers on the Durham Manufacturing Company and the former location of Merriam Manufacturing Company, both located on Main Street. Both companies manufacture metal cabinets, boxes and other items. The companies' past disposal of wastewater in lagoons or sludge drying beds (formerly accepted waste management practices), and inadequate drum storage at Merriam Manufacturing Company, contributed to the contamination.

In 1982, the Connecticut Department of Environmental Protection (CT DEP) detected volatile organic compounds (VOCs - commonly found in solvents, paints and degreasers) in private drinking water wells in the Durham area. Subsequently, limited soil cleanup activities were undertaken at both plant sites, however, the VOCs had already penetrated the bedrock aquifer, the source of domestic well water. Under a CT DEP order, Merriam Manufacturing and Durham Manufacturing installed carbon filters on impacted residential wells.

Currently, all impacted wells are fitted with two carbon filters. Durham Manufacturing Company is maintaining and monitoring 14 wells on a quarterly basis. Until recently, the Merriam Manufacturing Company was servicing an additional 24 wells; CT DEP is currently servicing these wells. CT DEP also periodically samples drinking water wells beyond the contaminated groundwater zone.

In late 2003, and through 2004, EPA and CT DEP sampled residential wells in the area for a newly discovered contaminant, 1,4-Dioxane. Of over 70 residential wells sampled, 1,4-Dioxane has been detected at approximately 22 locations. At four locations, 1,4-Dioxane persists at levels at or approaching the CT DPH interim drinking water comparison value of 20 ppb; CT DEP is providing bottled water to these homes for drinking, and has added 1,4-Dioxane to the list of contaminants being sampled for a number of homes that are currently being filtered and monitored under State order for VOCs.

EPA is conducting a Remedial Investigation and Feasibility Study (RI/FS) at the Durham Meadows Superfund site. During an RI/FS, EPA and/or the potentially responsible parties conduct a series of studies to evaluate conditions at the site, define problems, and compare alternative cleanup strategies.

In summer 2005, EPA expects to finalize the RI/FS for the entire site, including the Merriam Manufacturing Company property, the Durham Manufacturing Company property, and the overall area of groundwater contamination. EPA will present cleanup plans for the entire site and present these plans for public comment.

***If you have any questions about the Durham Meadows Superfund Site or would like more information, you may call or write:***

Anni Loughlin, Project Manager  
U.S. Environmental Protection Agency  
ME/VT/CT Superfund Section (HBT)  
One Congress Street, Suite 1100  
Boston, MA 02114-2023  
617-918-1273 or 800-372-7341 ext. 81273  
e-mail: loughlin.anni@epa.gov

Jim Murphy, Community Involvement Coordinator  
U.S. Environmental Protection Agency (HIO)  
One Congress Street, Suite 1100  
Boston, MA 02114-2023  
617-918-1028 or 888-372-7341 ext. 81028  
e-mail: murphy.jim@epa.gov

Gary Perlman  
Agency for Toxic Substances and Disease  
Registry (ATSDR)  
One Congress Street, Suite 1100 (HBT)  
Boston, MA 02114-2023  
617-918-1492  
e-mail: GAP6@cdc.gov

### **State of Connecticut:**

Mike Beskind  
Connecticut Department of Environmental  
Protection  
Waste Management Bureau, Remediation  
Division  
79 Elm Street  
Hartford, CT 06106-5127  
860-424-3763  
e-mail: martin.beskind@po.state.ct.us

Stewart Chute  
Connecticut Department of Public Health  
EEOH, MS# 11CHA  
410 Capitol Ave, P.O. Box 340308  
Hartford, CT 06134-0308  
860-509-7742  
e-mail: stewart.chute@po.state.ct.us

**Information Repository:** Durham Public Library, 7 Maple Avenue, Durham, CT 06422-2112. For assistance locating information in the repository, please call Valerie Kilmartin at 860-349-9544. Library hours are 10:00 - 9:00 Monday - Thursday, and 10:00 - 5:00 Friday and Saturday

**EPA New England website for Durham Meadows**  
**[www.epa.gov/ne/superfund/sites/durham](http://www.epa.gov/ne/superfund/sites/durham)**